

SB PROP @ ARL \$ARLP003
ARLP003 Propagation de K7RA

ZCZC AP03
QST de W1AW
Propagation Forecast Bulletin 3 ARLP003
>From Tad Cook, K7RA
Seattle, WA January 17, 2014
To all radio amateurs

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Solar activity suddenly weakened during this bulletin's reporting period, January 9-15, and the lower activity and expectations continue. Average daily sunspot numbers declined from 188.1 to 111.4, and average daily solar flux went from 201.6 to 155.4. Those drops compare the January 9-15 period to the January 2-8 week. Daily sunspot numbers dipped below 100, to 95, 87 and 77 on January 14-16.

The latest prediction doesn't look promising, at least if we are hoping to sustain the recent increased activity of January 4-7. It shows solar flux at 120 on January 16, 118 on January 17, 115 on January 19-20, 112 on January 21-23, then 115, 130, 135 and 145 on January 24-27, and 155 on January 28-29. It then climbs to a peak of 180 between February 2-5, and declines to a minimum of 125 February 17-20. By minimum, this does not mean that solar flux is predicted to be at least 125 on those dates, but rather another low point before rising again to around 180 about six weeks from now.

Predicted planetary A index is 12 and 10 on January 17-18, 5 on January 19-23, 8 on January 24, 5 on January 25-27, then 10, 18 and 8 on January 28-30, 5 on January 31 through February 6, then 8, 8 and 6 on February 7-9, then back to 5 for the following nine days.

The geomagnetic activity forecast from OK1HH calls for quiet conditions on January 18-21, mostly quiet January 22, quiet to unsettled January 23, mostly quiet January 24, quiet January 25, mostly quiet January 26, quiet January 27, quiet to active January 28, active to disturbed January 29, quiet to unsettled January 30, mostly quiet January 31, quiet February 1, quiet to unsettled February 2-3, mostly quiet February 4-6, quiet February

7-9, quiet to unsettled February 10-11, and mostly quiet on February 12.

Regarding lowered expectations, note that on January 4-7 the daily solar flux values were 215, 217.5, 203.9, and 237.1. But compare that with the lowered expectations, declining over time, for yesterday's solar flux. In the 45 day forecast, the predicted solar flux for January 16 beginning on December 2 was 125, and this prediction continued until December 9 when it jumped way up to 170.

That prediction continued in the daily forecast until December 16, when it dropped to 150, where it stayed through January 2. On January 3, 2014 the forecast for January 16, went down 5 points to 145, then rose to 155 on January 6-9, then a very optimistic 175 for a single day's forecast on January 10, then to 165 on January 11, 140 on January 12-13, 135 on January 14, and 125 on January 15. The next day, the actual number was 121, fairly close to the original estimate of 125 back 40-45 days earlier.

Note that these numbers are only the values predicted for January 16, as they varied over time.

On January 14, Don Bush, WA2TPU sent a message concerning an unusually strong and short opening to South Africa on 20 meters he experienced recently around midnight his local time (New York). He runs just 5 watts and talks to his friends Mike, ZS1RJQ and Peter, ZS1PZ on 14.233 MHz around 0430-0500 UTC.

Don writes, "Both Mike and Peter are using tri-band beams on 40 foot towers and 100 watts. I'm using a 300 feet per side Vee beam about 35 feet off the ground sloping to 25 feet and 45 feet. The Vee beam has one leg going NW and the other leg going W - fed with ladder-line to a 4 to 1 balun and then a 100 foot run of RG-8 to my KX-3.

"We start calling each other about 0425 UTC. Both Mike and Peter build out of the noise and are usually Q5 S8-9 here by 0435 UTC. I'm usually a 5 by 3-5 there in ZS land with my 5 watts. Again, this has been on a week long basis and we have made contact every night.

"Why I'm dropping you an email is that last night I experienced something talking to Mike and Peter I have only had happen to me on 6 meters. Mike and Peter peaked last night both having solid 5 by 9 signals from 0445 to 0500 UTC. What was so interesting about

the QSO last night is that both their SSB signals were bursting 15-20 dB over 9 like meteor scatter does on 6 meters. It truly was that pronounced of bursting, like scatter.

"I realize that my NW/W Vee Beam radiates bi-directionally to ZS Land and parts of Asia. I also know that midnight here is dawn there in South Africa. Might I have been picking-up both long and short paths at the same time to get that bursting effect in their signals from ZS Land? Never heard of gray-line doing this either on 20 meters."

Don, that's an interesting story. I doubt there is a long path component in this, and if there was, I don't think it would produce that bursting effect. I would think the effect might be muddled by out of phase and multiple phase arriving signals at the New York end. 0500 UTC is about an hour after their sunrise in Cape Town.

Also, a conventional MUF model shows at this time of year 0430-0500 UTC might be near the end of a possibly strong signal period, but the odds of making contact at that time show as fairly low. W6ELprop estimates less than 25%. Probably this propagation is not modeled very well with a simple propagation program such as W6ELprop.

I am not clear if this 0500 UTC period was on the early part of January 14 or not, but at 0300 UTC the planetary K index had jumped from 1 to 4, which is on the verge of being somewhat geomagnetically unsettled or disturbed.

KB4FP received another surprise from South Africa recently. On January 10, Jerry wrote: "I turned the 940s on yesterday around 1900 UTC, expecting very little from my tangle of wires called antennae!

On the lower parts of 17 meters, I heard a very loud signal, way over S-9. Thinking it was a local here, near Lexington, Virginia I was surprised that it was a ZS, which is not often that strong in my shack! I worked him and a few other strong stations remembering the early 1980s. Today, same time, same station but if anything, stronger. So much so that the signal was almost distorted! I loved it!

"Wonderful moments in Ham Radio!!"

If you would like to make a comment or have a tip for our readers, email the author at, k7ra@arrl.net.

For more information concerning radio propagation, see the ARRL Technical Information Service web page at <http://arrl.org/propagation-of-rf-signals>. For an explanation of the numbers used in this bulletin, see <http://arrl.org/the-sun-the-earth-the-ionosphere>. An archive of past propagation bulletins is at <http://arrl.org/wlaw-bulletins-archive-propagation>. More good information and tutorials on propagation are at <http://k9la.us/>.

Monthly propagation charts between four USA regions and twelve overseas locations are at <http://arrl.org/propagation>.

Instructions for starting or ending email distribution of ARRL bulletins are at <http://arrl.org/bulletins>.

Sunspot numbers for January 9 through 15 were 106, 138, 134, 118, 102, 95, and 87, with a mean of 111.4. 10.7 cm flux was 184.1, 175.1, 166.1, 155.3, 144.3, 137, and 126.2, with a mean of 155.4. Estimated planetary A indices were 10, 5, 4, 9, 7, 11, and 4, with a mean of 7.1. Estimated mid-latitude A indices were 7, 4, 3, 7, 6, 8, and 3, with a mean of 5.4.

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